

## Logic Seminar

### *The Borel complexity of the class of models of first-order theories*

Hongyu Zhu (University of Wisconsin Madison)

**Abstract:** Viewed as a subset of Cantor space, the class of countable models  $\text{Mod}(T)$  of any first order theory  $T$  is always Borel. A natural question, then, is the relationship between its descriptive complexity and the complexity of the underlying theory. Using theorems of López-Escobar and Solovay, we give a more precise characterization of the complexity of  $\text{Mod}(T)$  in terms of that of  $T$ . We also discuss some applications to models of PA and infinitary logic. (This is based on joint work with Andrews, Gonzalez, Lempp, Rossegger, and related to recent work of Enayat and Visser.)

Tuesday, October 22 at 4:00 PM in 636 SEO